The section which treats of the glacial epoch has been rewritten and enlarged, and a number of cuts have been added. Professor Fairchild has shown much skill in preserving the spirit and style of the book, and yet by a series of deft touches he has been able, in most instances, to bring the subject-matter up to date and well to the forefront of the rapidly advancing science. HENRY LANDES.

Geology. By THOMAS C. CHAMBERLIN AND ROLLIN D. SALISBURY. Vol. I, Geologic Processes and Their Results; Vol. II, Earth History. (American Science Series — Advanced Course.) Henry Holt & Co., 1903.

VOLUME I is just issuing from the press. Volume II is to follow closely. The following extract from the preface indicates the controlling ideas of the authors:

In the preparation of this work it has been the purpose of the authors to present an outline of the salient features of geology, as now developed, encumbered as little as possible by technicalities and details whose bearings on the general theme are unimportant. In common with most writers of text-books on geology, the authors believe that the subject is best approached by a study of the forces and processes now in operation, and of the results which these forces and processes are now bringing about. Such study necessarily involves a consideration of the principles which govern the activities of geologic agencies. These topics are presented in Vol. I, and prepare the way for the study of the history of past ages, which is outlined in Vol. II.

The general plan of the work has been determined by the experience of the authors as instructors. Little emphasis is laid on the commonly recognized subdivisions of the science, such as *dynamic geology*, *stratigraphic geology*, *physiographic geology*, etc. The treatment proceeds rather from the point of view that the science is a unit, that its one theme is *the history of the earth*, and that discussions of dynamic geology, physiographic geology, etc., apart from their historical bearings, lose much of their significance and interest. The effort has, therefore, been to emphasize the historical element, even in the discussion of special themes, such as the work of rivers, the work of snow and ice, and the origin and descent of rocks. This does not mean that phases of geology other than historical have been neglected, but it means that an effort has been made to give a historical cast to all phases of the subject, so far as the topics permit.

Throughout the work the central purpose has been, not merely to set forth the present status of knowledge, but to present it in such a way that the student will be introduced to the methods and spirit of the science, led to a sympathetic interest in its progress, and prepared to receive intelligently, and

to welcome cordially, its future advances. Where practicable, the text has been so shaped that the student may follow the steps which have led to present conclusions. To this end the working methods of the practical geologist have been implied as frequently as practicable. To this end also there has been frankness of statement relative to the limitations of knowledge and the uncertainty of many tentative conclusions. In these and in other respects, the purpose has been to take the student into the fraternity of geologists, and to reveal to him the true state of the development of the science, giving an accurate and proportionate view of the positive knowledge attained, of the problems yet unsolved, or but partially solved, and of solutions still to be attained.

The theoretical and interpretative elements which enter into the general conceptions of geology have been freely used, because they are regarded as an essential part of the evolution of the science, because they often help to clear and complete conceptions, and because they stimulate thought. The aim has been, however, to characterize hypothetical elements as such, and to avoid confusing the interpretations based on hypothesis with the statements of fact and established doctrines. Especial care has been taken to recognize the uncertain nature of prevalent interpretations when they are dependent on unverified hypotheses, especially if this dependence is likely to be overlooked. If this shall seem to give prominence to the hypothetical element, it should also be regarded as giving so much the more emphasis to that which is really trustworthy, in that it sets forth more frankly that which is doubtful. Hypothetical and unsolved problems have been treated, so far as practicable, on the multiple basis; that is, alternative hypotheses and alternative interpretations are frequently presented where knowledge does not warrant positive conclusions.

In many cases the topics discussed will be found to be presented in ways differing widely from those which have become familiar. In some cases fundamentally new conceptions of familiar subjects are involved; in others topics not usually discussed in text-books are stated with some fulness; and in still others the emphasis is laid on points which have not commonly been brought into prominence. Whether the authors have been wise in departing to this extent from beaten paths, the users of the volumes must decide.

The work is intended primarily for mature students, and is designed to furnish the basis for a year's work in the later part of the college course. By judicious selection of material to be presented and omitted, the volumes will be found useful for briefer courses, and by the use of the numerous references to the fuller discussions of special treatises they may be made the basis for more extended courses than are commonly given in undergraduate work. The attempt has also been made to make the volumes readable, in the belief that many persons not in colleges or universities will be interested in follow-

ing a connected account of the earth's history, and of the means by which that history is recorded and read. Antecedent elementary courses in geology will not be necessary to the use of these volumes, though such courses may be helpful.

The arrangement of themes adopted is such as to bring to the fore processes with which all students are immediately in contact, and which are available for study at all seats of learning. The commoner geologic agents, such as the atmosphere and running water, have been elaborated somewhat more fully than is customary, and the common rather than the exceptional phases of the work of these agents have been emphasized, both because of their greater importance and their universal availability. The text has been so shaped as to suggest field work in connection with these topics especially, since work of this sort is everywhere possible.

After the preliminary outline, which is intended to give some idea of the scope of the science, and of its salient features, and to show the relations of the special subjects which follow, the order of treatment is such as to pass from the commoner and more readily apprehended portions of the subject to those which are less readily accessible and more obscure. Following the same general conception, the treatment of the topics is somewhat graded, the earlier chapters being developed with greater simplicity and fulness, while the later are somewhat more condensed.